WHAT IS CLAIMED IS:

1. In an optical fiber communication network utilizing frequency division multiplexing, a variable rate input converter comprising:

a clock and data recovery unit for recovering a first clock signal representing the non-uniform rate of the input signal, and recovering data of the incoming signal;

a demultiplexer coupled to receive the incoming non-uniform rate signal for demultiplexing to form a plurality of separate signals using time division multiplexing techniques;

a buffer coupled to the demultiplexer to receive and store the plurality of separate signals;

a generation unit coupled to receive the separate signals from the buffer, said generation unit transforming the separate signals to one or more pseudo signals comprising a uniform rate within a tolerance range;

a synthesizer coupled to receive the first clock signal from the clock and data recovery unit for generating a second clock signal comprising a uniform rate within a tolerance range for the generated pseudo signal using the recovered first clock signal; and

a control unit communicatively coupled to the clock and data recovery unit, the demultiplexer, the buffer and the generation unit.

2. The variable rate converter of claim 1 wherein the second clock signal for the generated pseudo signal is in phase alignment with the recovered first clock signal.

3. The variable rate input converter of claim 1 wherein the pseudo signal comprises a frame comprising a payload portion comprising a plurality of subpackets, each subpacket comprising data of the non-uniform rate input signal, and stuff bytes comprising null data to fill unused parts of the payload portion.

4. The variable rate input converter of claim 3 wherein each frame includes an extra data indicator.

5. The variable rate input converter of claim 4 wherein a number of bytes in each sub-packet and a number of stuff bytes is calculated based on the non-uniform rate of the input signal and the uniform rate of the pseudo signal.

6. The variable rate input converter of claim 1 wherein the buffer is a plurality of first-in-first-out buffers with one first-in-first-out buffer for each separate signal.

7. The variable rate input converter of claim 1 further comprising a transceiver capable of receiving signals at various non-uniform rates and comprising an output coupled to the input of the clock and data recovery unit for forwarding the non-uniform rate signal.

8. The variable rate input converter of claim 7 wherein the transceiver accepts both asynchronous and synchronous input signals.

9. The variable rate input converter of claim 1

wherein the synthesizer unit comprises frequency dividers, each comprising an integer divisor; and

wherein the control unit further comprises instructions for causing the selection of integer divisor values optimized for the non-uniform input rate and the tuning of a uniform rate clock output frequency within a tolerance range for the uniform rate signal.

10. The synthesizer unit of claim 9 wherein the uniform rate signal is 155.52 Mbps with a tolerance range about twenty-two parts per million around 155.52 Mbps.

11. The variable rate input converter of claim 1 wherein the generated pseudo signal is a pseudo STS-3 signal.

12. The variable rate input converter of claim 1 further comprising a search mode wherein the clock and data recovery unit selects non-uniform target frequencies from a look-up table in the order lower frequencies to higher frequencies until either the non-uniform rate is determined or all the values in the table have been selected.

13. The variable rate input converter of claim 12 wherein the look-up table is field programmable.

14. The variable rate input converter of claim 1 further comprising:

a serial to parallel converter being coupled to receive a serial bit stream from said clock and data recovery unit, said converter converting the serial bit stream into a parallel byte stream; and

a parallel to serial converter being coupled to receive one or more generated pseudo signals from the generation unit for converting it to a serial bit format.

15. A data transmission frame format for a signal comprising a uniform rate, the format comprising a payload portion comprising a plurality of subpackets, each subpacket comprising data of a non-uniform rate input signal and stuff bytes, the stuff bytes comprising null data to fill unused parts of the payload portion.

16. The data transmission format of claim 15 further comprising an extra data indicator.

17. The data transmission format of claim 15 further comprising a number of bytes in each sub-packet determined from the non-uniform rate of the input signal and a number of stuff bytes determined from the non-uniform rate of the input signal and the uniform rate of the pseudo signal.

18. The data transmission format of claim 15 further comprising a valid framing header for the uniform rate.

19. In an optical fiber communication network utilizing frequency division multiplexing, means for converting a non-uniform rate input signal to a pseudo signal comprising a uniform rate comprising:

means for recovering a first clock signal representing the non-uniform rate of the input signal and recovering data of the incoming signal;

means for demultiplexing the incoming non-uniform rate signal into a plurality of separate signals using time division multiplexing techniques; the means for demultiplexing the incoming non-uniform rate signal being coupled to the means

for recovering a first clock signal representing the non-uniform rate of the input signal and recovering data of the incoming signal;

means for receiving and storing the plurality of separate signals;

means for transforming the separate signals to one or more pseudo signals at a uniform rate within a tolerance range, the means for transforming receiving the separate signals at the same time from the means for receiving and storing the plurality of separate signals;

coupled to receive the first clock signal from the means for recovering a first clock signal representing the non-uniform rate, means for generating a second clock signal at a uniform rate within a tolerance range using the recovered first clock signal for the generated pseudo signals; and

means for controlling being communicatively coupled to the means for recovering a first clock signal representing the non-uniform rate, the means for demultiplexing incoming non-uniform rate signal into a plurality of separate signals using time division multiplexing techniques, the means for receiving and storing the plurality of separate signals, the means for transforming the separate signals to a pseudo signal at a uniform rate; and the means for generating a second clock at a uniform rate for the generated pseudo signal.

20. In an optical fiber communication network utilizing frequency division multiplexing, a method for converting a non-uniform rate input signal into a uniform rate output signal, the method comprising the steps of:

recovering a first clock signal representing the non-uniform rate and recovering data of the incoming signal;

demultiplexing the incoming non-uniform rate signal to form a plurality of separate signals using time division multiplexing techniques;

storing the plurality of separate signals; and

transforming the separate signals to one or more pseudo signals at a uniform rate within a tolerance range;

generating a second clock signal at a uniform rate for the generated pseudo signal using the recovered first clock signal.

21. The method of claim 20, further comprising:

causing the insertion of a marker bit at each interval of a certain data length in each of the separate signals.

22. The method of claim 20, wherein the step of generating a pseudo signal includes producing a frame comprising a plurality of subpackets in a payload portion comprising data of the original input signal and stuff bytes, the stuff bytes comprising null data to fill unused parts of the payload portion.

24. The method of claim 20 wherein determining a data rate of a non-uniform rate input signal and recovering a first clock signal representing the non-uniform rate further comprises:

selecting integer divisor values for frequency dividers optimized for the non-uniform input rate; and

selecting an output frequency within a tolerance range of a uniform rate signal.

25. The method of claim 26, wherein the step of generating a pseudo signal includes producing a frame including an extra data indicator.

26. In an optical fiber communication network utilizing frequency division multiplexing, a variable rate output converter comprising:

a clock and data recovery unit for recovering a first clock signal representing an incoming pseudo signal and recovering frames of data of the incoming pseudo signal;

a decomposition unit coupled to receive frames of the incoming pseudo signal and extracting original of a non-uniform rate signal from subpackets;

a buffer coupled to the decomposition unit to receive and store the original data bytes;

a multiplexer coupled to receive the original data packets from the buffer and for re-constructing the original non-uniform rate signal from a plurality of original data bytes; and

a synthesizer unit for generating the original non-uniform rate signal using the first clock signal representing the uniform rate;

and a control unit communicatively coupled to the clock and data recovery unit, the multiplexer, the buffer, the synthesizer unit and the decomposition unit.

27. The variable rate output converter of claim 26 wherein the decomposition unit receives data frames and strips out overhead and stuff bytes, and converts the original data of the subpackets into a plurality of separate signals.

28. The variable rate output converter of claim 24 wherein the multiplexer searches for a valid marker for alignment of the bytes in the signals and reconstructs the non-uniform rate data stream.

29. The variable rate output converter of claim 26 wherein the decomposition unit includes a frame counter that uses a start of frame information to locate the overhead byte positions and an encapsulated data sub-packet.

30. The variable rate output converter of claim 26 wherein the decomposition unit also performs fault monitoring.

31. The variable rate output converter of claim 26

wherein the synthesizer unit comprises frequency dividers, each comprising an integer divisor; and

wherein the control unit further comprises instructions for causing the selection of integer divisor values optimized for recovering the non-uniform output rate and allowing a relaxation of a uniform rate within a tolerance range for the incoming pseudo signal.

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32. In an optical fiber communication network utilizing frequency division multiplexing, a method for converting a pseudo signal comprising a uniform rate to a non-uniform rate output signal, the method comprising:

recovering a first clock signal representing the rate of an incoming pseudo signal;

recovering frames of an incoming pseudo signal;

decomposing the frames of incoming uniform signal and extracting from sub-packets data bytes of a non-uniform rate signal from the pseudo signal;

receiving and storing the original data bytes;

re-constructing the original non-uniform rate signal from a plurality of original data bytes; and

generating the original non-uniform rate signal using the first clock signal representing the rate of the incoming pseudo signal.

33. The method of claim 32, wherein decomposing the incoming uniform signal comprises stripping out overhead and stuff bytes.

34. The method of claim 32, wherein the step of multiplexing searches for a valid header byte, aligns the bytes and reconstructs the non-uniform rate signal.

35. The method of claim 32, further comprising the step of performing fault monitoring.

36. In an optical fiber communication network utilizing frequency division multiplexing, means for converting a pseudo signal comprising a uniform rate to a non-uniform rate output signal comprising:

means for recovering a first clock signal representing the rate of an incoming pseudo signal further comprising means for recovering frames of an incoming pseudo signal;

coupled to the means for recovering, means for decomposing the frames of the incoming signal and extracting packets comprising data of an original non-uniform rate signal from the pseudo signal;

means for storing the original data coupled to receive the original data from the means for decomposing;

means for re-constructing the original non-uniform rate signal from a plurality of original data bytes, the means for re-constructing coupled to receive the original data bytes from the means for storing; and

means for generating a second clock signal representing the rate of the original non-uniform rate signal using the first clock signal representing the rate of the incoming pseudo signal, said means for generating coupled to receive the first clock signal from the means for recovering and outputting the second clock signal

to a means for converting the re-constructed original non-uniform signal to a serial bit stream.